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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/714,290	11/13/2003	Sunkara Vardhireddy Manorama	206,344	2033
7590 Abelman, Frayne & Schwab 150 East 42nd Street New York, NY 10017			EXAMINER FIORITO, JAMES	
			ART UNIT 1754	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		01/04/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/714,290	Applicant(s) MANORAMA ET AL.	
	Examiner James A. Fiorito	Art Unit 1754	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 recites the limitation "the precipitate of step (a)" in line 8. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, 8, and 10-12 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Reddy "Bandgap studies on anatase dioxide nanoparticles" (2002).

Reddy teaches a process of for the simultaneous preparation of the nanocrystalline anatase titanium dioxide powder having particle size in the range of 5-10 nm and hydrazine monohydrochloride, said process comprising the steps of: i. adding hydrazine monohydrate solution drop wise to acidic aqueous solution of titanium tetra chloride with constant stirring to form precipitate, ii. filtering the precipitate of step (i) to obtain titanium dioxide having particle size in the range of 5 to 10 nm (Experimental, Pages 239-240).

Reddy does not expressly state that the hydrazine monohydrate is added at a temperature in the range of 20 to 45 degrees C. However, since Reddy is silent with respect to this temperature, it appears obvious to add the hydrazine monohydrate at ambient temperature.

Reddy does not expressly state the surface area of the titanium dioxide product. However, where the claimed and prior art product(s) are identical or substantially identical, or are produced by identical or substantially identical process(es) the burden of proof is on applicant to establish that the prior art product(s) do not necessarily or inherently possess the characteristics of the instantly claimed product(s), see *In re Best*, 195 USPQ 430.

Claims 1-6, 8, and 10-12 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Reddy "Preparation, Characterization, and Spectral Studies on Nanocrystalline Anatase TiO₂" (2001).

Reddy teaches a process of for the simultaneous preparation of the nanocrystalline anatase titanium dioxide powder having particle size in the range of 3-10 nm ($\sim 210 \text{ m}^2/\text{g}$) and hydrazine monohydrochloride, said process comprising the steps of: i. adding hydrazine monohydrate solution drop wise to acidic aqueous solution of titanium tetra chloride with constant stirring to form precipitate, ii. filtering the precipitate of step (i) to obtain titanium dioxide having particle size in the range of 3 to 10 nm (Experimental, Page 181).

Reddy does not expressly state that the hydrazine monohydrate is added at a temperature in the range of 20 to 45 degrees C. However, since Reddy is silent with respect to this temperature, it appears obvious to add the hydrazine monohydrate at ambient temperature.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reddy "Bandgap studies on anatase dioxide nanoparticles" (2002).

Reddy does not expressly state the step of freeze drying the filtrate and washing the filtrate with water at a temperature in the range of -60 to -40 degrees C. However it is obvious to recover any liquid by solidifying it at temperatures below its melting point.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reddy "Preparation, Characterization, and Spectral Studies on Nanocrystalline Anatase TiO₂" (2001).

Reddy does not expressly state the step of freeze drying the filtrate and washing the filtrate with water at a temperature in the range of -60 to -40 degrees C. However it is obvious to recover any liquid by solidifying it at temperatures below its melting point.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reddy "Bandgap studies on anatase dioxide nanoparticles" (2002) in view of Okusako '746.

Reddy does not teach that the titanium oxide is calcined in a nitrogen atmosphere.

Okusako teaches a process of making titanium oxide wherein the titanium oxide is calcined in a nitrogen atmosphere (Paragraph 14). Reddy and Okusako are analogous art because they are from the same field of endeavor, namely process of making titanium oxide.

At the time of invention it would have been obvious to form the process of Reddy including the titanium oxide is calcined in a nitrogen atmosphere in view of the teaching of Okusako. The suggestion or motivation for doing so would have been to decrease the photo-activity of the titanium oxide (Paragraph 14).

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reddy "Preparation, Characterization, and Spectral Studies on Nanocrystalline Anatase TiO₂" (2001) in view of Okusako '746.

Reddy does not teach that the titanium oxide is calcined in a nitrogen atmosphere.

Okusako teaches a process of making titanium oxide wherein the titanium oxide is calcined in a nitrogen atmosphere (Paragraph 14). Reddy and Okusako are analogous art because they are from the same field of endeavor, namely process of making titanium oxide.

At the time of invention it would have been obvious to form the process of Reddy including the titanium oxide is calcined in a nitrogen atmosphere in view of the teaching of Okusako. The suggestion or motivation for doing so would have been to decrease the photo-activity of the titanium oxide (Paragraph 14).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Fiorito whose telephone number is (571)272-7426. The examiner can normally be reached on 9am - 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone

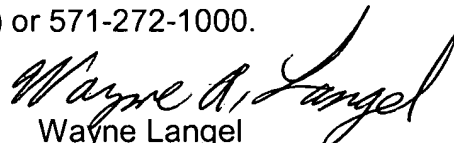
Art Unit: 1754

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

James Fiorito
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JF


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